

## Claims

We claim:

1. A method for creating a graphical program, the method comprising:
  - 5 displaying information indicating a plurality of program processes, wherein each program process has a corresponding graphical program template, wherein each graphical program template comprises a plurality of interconnected nodes;  
receiving user input selecting a first program process from the plurality of program processes, wherein the first program process has a corresponding first graphical  
10 program template;  
including the first graphical program template in the graphical program in response to the user input;  
wherein said including the first graphical program template in the graphical program comprises programmatically including a plurality of interconnected nodes in the  
15 graphical program for performing the first program process.
2. The method of claim 1, further comprising:
  - for at least a first node that was programmatically included in the graphical program, performing the following:  
20 displaying a graphical user interface (GUI) associated with the first node, wherein the GUI comprises information useable in guiding a user in specifying desired functionality for the first node;  
receiving user input to the GUI specifying desired functionality for the first node;  
25 programmatically including graphical source code associated with the first node in the graphical program, wherein the programmatically included graphical source code implements the specified functionality.
3. The method of claim 2,

wherein no functionality is set for the first node until after said programmatically including graphical source code associated with the first node in the graphical program.

4. The method of claim 2,  
5 wherein default functionality is set for the first node;  
wherein said programmatically including graphical source code associated with the first node in the graphical program comprises replacing the default functionality with the specified functionality.

10 5. The method of claim 2,  
wherein no program instructions to be executed during execution of the graphical program are associated with the first node until after said programmatically including graphical source code associated with the first node in the graphical program.

15 6. The method of claim 2,  
wherein said programmatically including graphical source code associated with the first node in the graphical program comprises programmatically including the graphical source code as a sub-program of the graphical program, wherein the first node represents the sub-program.

20 7. The method of claim 2,  
wherein said programmatically including graphical source code associated with the first node in the graphical program comprises replacing the first node in the graphical program with the programmatically included graphical source code.

25 8. The method of claim 1,  
wherein each program process comprises a virtual instrumentation process.

9. The method of claim 8,

wherein each virtual instrumentation process comprises one or more of:  
a test and measurement process;  
an industrial automation process.

5

10. A method for creating a graphical program, the method comprising:  
displaying a plurality of graphical program templates, wherein each template  
comprises a plurality of interconnected nodes;

receiving user input specifying a first template from the plurality of graphical  
10 program templates;

programmatically including the first template in the graphical program, wherein  
said programmatically including the first template in the graphical program comprises  
programmatically including the interconnected nodes of the first template in the graphical  
program;

15 for at least a first node that was programmatically included in the graphical  
program, performing the following:

displaying a graphical user interface (GUI) associated with the first node,  
wherein the GUI comprises information useable in guiding a user in specifying desired  
functionality for the first node;

20 receiving user input to the GUI specifying desired functionality for the  
first node;

programmatically including graphical source code associated with the first  
node in the graphical program, wherein the programmatically included graphical source  
code implements the specified functionality.

25

11. The method of claim 10,  
wherein no functionality is set for the first node until after said programmatically  
including graphical source code associated with the first node in the graphical program.

FOIA b 7 - DECLASSIFIED

12. The method of claim 10,  
wherein default functionality is set for the first node;  
wherein said programmatically including graphical source code associated with  
the first node in the graphical program comprises replacing the default functionality with  
5 the specified functionality.

13. The method of claim 10,  
wherein no program instructions to be executed during execution of the graphical  
program are associated with the first node until after said programmatically including  
10 graphical source code associated with the first node in the graphical program.

14. The method of claim 10,  
wherein said programmatically including graphical source code associated with  
the first node in the graphical program comprises programmatically including the  
15 graphical source code as a sub-program of the graphical program, wherein the first node  
represents the sub-program.

15. The method of claim 10,  
wherein said programmatically including graphical source code associated with  
20 the first node in the graphical program comprises replacing the first node in the graphical  
program with the programmatically included graphical source code.

16. The method of claim 10, further comprising:  
receiving user input requesting to specify functionality of the first node;  
25 wherein said displaying the graphical user interface (GUI) associated with the first  
node is performed in response to the user input requesting to specify functionality of the  
first node.

17. The method of claim 10,

wherein each template corresponds to a program process, wherein the plurality of interconnected nodes for each template implement the respective program process.

18. The method of claim 10,

5 wherein each template corresponds to a virtual instrumentation process, wherein the plurality of interconnected nodes for each template implement the respective virtual instrumentation process.

19. The method of claim 18, wherein each virtual instrumentation process  
10 comprises one or more of:

a test and measurement process;  
an industrial automation process.

15 20. A method for creating a virtual instrument graphical program, the method comprising:

displaying information indicating a plurality of virtual instrumentation processes,  
wherein each virtual instrumentation process has a corresponding graphical program  
template, wherein each graphical program template comprises a plurality of  
20 interconnected nodes;

receiving user input selecting a first virtual instrumentation process from the  
plurality of virtual instrumentation processes, wherein the first virtual instrumentation  
process has a corresponding first graphical program template;

25 including the first graphical program template in the virtual instrument graphical  
program in response to the user input;

wherein said including the first graphical program template in the virtual  
instrument graphical program comprises including a plurality of interconnected nodes in  
the virtual instrument graphical program for performing the first virtual instrumentation  
process.

21. A memory medium for creating a graphical program, the memory medium comprising program instructions executable to:

5 display information indicating a plurality of program processes, wherein each program process has a corresponding graphical program template, wherein each graphical program template comprises a plurality of interconnected nodes;

receive user input selecting a first program process from the plurality of program processes, wherein the first program process has a corresponding first graphical program  
10 template;

include the first graphical program template in the graphical program in response to the user input;

wherein said including the first graphical program template in the graphical program comprises programmatically including a plurality of interconnected nodes in the  
15 graphical program for performing the first program process.

22. The memory medium of claim 21, further comprising program instructions executable to perform the following for at least a first node that was programmatically included in the graphical program:

20 display a graphical user interface (GUI) associated with the first node, wherein the GUI comprises information useable in guiding a user in specifying desired functionality for the first node;

receive user input to the GUI specifying desired functionality for the first node;

programmatically include graphical source code associated with the first node in  
25 the graphical program, wherein the programmatically included graphical source code implements the specified functionality.

23. The memory medium of claim 22,

wherein no functionality is set for the first node until after said programmatically including graphical source code associated with the first node in the graphical program.

24. The memory medium of claim 22,  
5 wherein default functionality is set for the first node;  
wherein said programmatically including graphical source code associated with the first node in the graphical program comprises replacing the default functionality with the specified functionality.

10 25. The memory medium of claim 22,  
wherein no program instructions to be executed during execution of the graphical program are associated with the first node until after said programmatically including graphical source code associated with the first node in the graphical program.

15 26. The memory medium of claim 22,  
wherein said programmatically including graphical source code associated with the first node in the graphical program comprises programmatically including the graphical source code as a sub-program of the graphical program, wherein the first node represents the sub-program.

20 27. The memory medium of claim 22,  
wherein said programmatically including graphical source code associated with the first node in the graphical program comprises replacing the first node in the graphical program with the programmatically included graphical source code.

25 28. A memory medium for creating a graphical program, the memory medium comprising program instructions executable to:

display a plurality of graphical program templates, wherein each template comprises a plurality of interconnected nodes;

receive user input specifying a first template from the plurality of graphical program templates;

5           programmatically include the first template in the graphical program, wherein said programmatically including the first template in the graphical program comprises programmatically including the interconnected nodes of the first template in the graphical program;

10           for at least a first node that was programmatically included in the graphical program, perform the following:

display a graphical user interface (GUI) associated with the first node, wherein the GUI comprises information useable in guiding a user in specifying desired functionality for the first node;

15           receive user input to the GUI specifying desired functionality for the first node;

programmatically include graphical source code associated with the first node in the graphical program, wherein the programmatically included graphical source code implements the specified functionality.

20           29. The memory medium of claim 28,  
wherein no functionality is set for the first node until after said programmatically including graphical source code associated with the first node in the graphical program.

25           30. The memory medium of claim 28,  
wherein default functionality is set for the first node;  
wherein said programmatically including graphical source code associated with the first node in the graphical program comprises replacing the default functionality with the specified functionality.



31. The memory medium of claim 28,

wherein no program instructions to be executed during execution of the graphical program are associated with the first node until after said programmatically including graphical source code associated with the first node in the graphical program.

5

32. The memory medium of claim 28,

wherein said programmatically including graphical source code associated with the first node in the graphical program comprises programmatically including the graphical source code as a sub-program of the graphical program, wherein the first node represents the sub-program.

10

33. The memory medium of claim 28,

wherein said programmatically including graphical source code associated with the first node in the graphical program comprises replacing the first node in the graphical program with the programmatically included graphical source code.

15

34. The memory medium of claim 28, further comprising program instructions executable to:

receive user input requesting to specify functionality of the first node;

wherein said displaying the graphical user interface (GUI) associated with the first node is performed in response to the user input requesting to specify functionality of the first node.

20